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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,942	03/23/2001	Stephen Christopher Kitson	30001063	6960

7590

10/24/2002

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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

ALC

Office Action Summary	Application No.		Applicant(s)	
	09/816,942		KITSON ET AL.	
	Examiner		Art Unit	
	Thoi V Duong		2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 ~~is~~/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 ~~is~~/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2 and 4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1 and 3-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Bryan-Brown et al. (USPN 6,456,348 B2).

As shown in Figs. 1, 2, 7a and 7b, Bryan-Brown discloses a bistable nematic liquid crystal device comprising:

a first cell wall 3 and a second cell wall 3 enclosing a layer 2 of nematic liquid crystal material;

electrodes 6, 7 for applying an electric field across at least some of the liquid crystal material;

a surface alignment 25 on the inner surface of at least the first cell wall providing alignment to the liquid crystal molecules;

an analyser 17 and a polariser 13 mounted on the cell walls;

wherein the surface alignment comprises an array of features which have at least one of a shape and an orientation to induce the director adjacent the features to adopt two different tilt angles in substantially the same azimuthal direction;

the arrangement being such that two stable liquid crystal molecular configurations can exist after suitable electrical signals have been applied to the electrodes (col. 3. lines 20-35),

wherein the second cell wall has a surface alignment 26 which induces a local homeotropic alignment of the director (col. 6. lines 14-43);

wherein the features are comprised of small pillars(or posts) and have a height in the range of 1-3 micrometers (col. 3, lines 56-67) and the spacing between the cell walls is typically 1-6 micrometers (col. 4, lines 38-39);

wherein at least part of the side wall of the posts is tilted with respect to the normal to the plane of the first cell wall and the tilt angle is about 5 degrees (col. 9, lines 54-58);

wherein each feature has a width of about 0.5 micrometer (col. 5. lines 11-19);

wherein the features are arranged in one of a random or pseudorandom array (col. 3, line 46 through col. 4, line 4);

wherein the features are spaced in the range of about 0.05 to 5 micrometers from each other (col. 10. lines 20-22);

wherein the liquid crystal material contains a surfactant (col. 3, lines 49-50);

wherein the features are formed from at least one of a photoresist or a plastics material (col. 3, lines 51-67 and col.5, lines 16-40);

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wherein the features are treated with a material, excluding any material which induces homeotropic alignment in liquid crystal materials (col. 3, lines 51 through col. 4, line 4);

wherein the features are formed from a material, excluding any material which induces homeotropic alignment in liquid crystal materials (col. 3, lines 51 through col. 4, line 4);

wherein the surface alignment on the second cell wall comprises an array of features which have at least one of a shape and an orientation to induce the liquid crystal director adjacent the features to adopt two different tilt angles in substantially the same azimuthal direction (col. 11, claim 21);

wherein the liquid crystal material has a pleochroic dye dissolved therein (col. 10, lines 23-24);

wherein at least one of the shape and the orientation of the features is such as to favour only one azimuthal director orientation adjacent the features, and this orientation is the same for each feature (col. 3, lines 46-49);

wherein at least one of the shape and the orientation of the features is such as to favour only one azimuthal director orientation adjacent the features, and this orientation varies from feature to feature so as to give a scattering effect in one of the two states; (col. 3, lines 46-49);

wherein the inner surface of the second cell wall is provided with an alignment which induces the local liquid crystal director to adopt a planar alignment in

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substantially the same azimuthal direction induced by the alignment on the surface of the first cell wall (col. 4, line 65 through col. 5, line 4);

wherein the liquid crystal director twists between the first cell wall and the second cell wall,

wherein the twist is induced by chiral doping of the liquid crystal material (col. 9, lines 54-55); and

wherein the twist is induced by treatment of the second cell wall to produce one of a planar or a tilted planar alignment of the local liquid crystal director at a non-zero angle to the azimuthal direction induced by the features on the first cell wall (col. 11, claims 16, 17).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bryan-Brown et al. (USPN 6,456,348 B2) in view of Jones et al. (WO 99/34251).

Bryan-Brown et al. discloses a bistable nematic liquid crystal device that is basically the same as that recited in claim 2 except that the liquid crystal material has a positive dielectric anisotropy. Jones et al. discloses a bistable nematic liquid crystal device wherein a nematic liquid crystal material having a negative dielectric anisotropy, a bistable surface alignment on one cell wall that permits liquid crystal molecules to

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adopt two different pretilts in substantially the same azimuthal direction, and a surface alignment on another cell wall inducing a local homeotropic alignment of the director (page 6, lines 14-23). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the bistable nematic liquid crystal device of Bryan-Brown et al. with the teaching of Jones et al. by employing a liquid crystal material having a negative dielectric anisotropy so as to obtain a good alignment over large area of cell walls.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

Thoi Duong



10/15/2002



William L. Sikes
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